focus

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Formosa

Until World War II the island that lies 100 miles off the coast of China midway between Shanghai and Hongkong was interesting to most people chiefly as the source of fine oolong tea and of about 85 per cent of the world's natural camphor. Today, "Ilha Formosa," or the "Island Beautiful," as the Portuguese named it, is a focal point in world affairs. It is one of the chain of volcanic islands extending from the frozen Aleutians to the South China Sea, and it was used by the Japanese during the war as a stepping-stone for the conquest of Southeast Asia. Being fairly large as islands go, it has ample room for military installations, and stands like an "unsinkable aircraft carrier" off the shore of China, dominating the sea lanes between the great cities of the north and south.

The original inhabitants of Formosa, or Taiwan, as it is called in the East, were Malayans. China's relations with the island date from 607 A.D., but the first small Chinese settlements were not established there until the fourteenth century. During the seventeenth century Portuguese, Spanish, and Dutch traders visited the island from time to time, and a few Spaniards and Dutchmen settled there. A little later the Dutch drove out the Spanish, and in 1661 the Dutch in turn were driven out by the Chinese, who came in numbers from Fukien and Kwangtung, two of the overpopulated coastal provinces on the mainland. At the end of the Sino-Japanese war (1895) China ceded Formosa to Japan. In 1945, after half a century of Japanese rule, the island was restored to China, and it has become the stronghold of the Nationalist Chinese government.

Although it would be an exaggeration to call Formosa "rich" (as well as beautiful), nevertheless this island is fairly well endowed with the means of making a livelihood—better than many other Far Eastern countries.

Shaped somewhat like a sweet potato, Formosa is 240 miles long from north to south and 90 miles wide at the broadest part. Its total area is 13,808 square miles, about that of Connecticut and New Hampshire combined. The general configuration is that of a tilted block, two-thirds of which is rugged hills and mountains. On the east coast the mountains drop so sharply to the Pacific that there is little level land for tillage, and the streams, short and swift, often flood the narrow valleys. The main mountain range has many peaks more than 12,000 feet high. Toward the west the land descends in a succession of terraces to the coastal plain along Formosa Strait. It is this plain that supports more than 80 per cent of the island's 10 million people.

One of the most conspicuous geologic features of Formosa is the elongated graben called Taitung Rift

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Valley, which lies between the central mountain backbone and the east-coast range. This trough, about 75 miles long and 5 to 10 miles wide, affords a floor for a railroad connecting the two ports of Hualienkang and Taitung. There is no continuous land transportation route along the east coast, nor any route connecting the east and the west through the mountains.

Though there is relatively little flat land suitable for cultivation, it can be put to good use, for the island has the advantage of a subtropical climate that favors the growth of two and even three crops a year on the same plot. Summers are long and, being tempered by the sea, are not unbearably hot; winters are short and mild. Keelung, in the north, has a yearly average temperature of 71° F.; Hengchun, at the southern tip, an average of 76°. Even in the coldest month, February, the average in Keelung is only 59°, that in Hengchun 69°. The peaks of the high mountains may be snow-capped in winter, but frost is rare on the plain, and central and southern Formosa are warm enough to grow sugar cane and pineapples, bananas, oranges, and other tropical fruits.

Besides a year-round growing season, all of Formosa except a very narrow strip along the west coast gets at least 40 inches of rain a year on the average. The combination of monsoon winds and the arrangement of the mountains gives the island two rainy seasons, which occur at opposite times of the year in the north and south. During the winter, from October to April, the strong north and northeast winds, carrying a large quantity of moisture picked up over the East China Sea, bring rain to the north. The winds that reach the south at this time of year have lost most of their moisture; consequently, the south enjoys clear, dry weather. Droughts are not infrequent, and irrigation is necessary.

During the summer, from May to September, the winds reverse and come mostly from the southwest. These winds also are moisture-bearing, but they blow irregularly because the temperature differentials between the warm water and the land are small. Most of the rain falls in the south; the north tends to be drier than in winter.

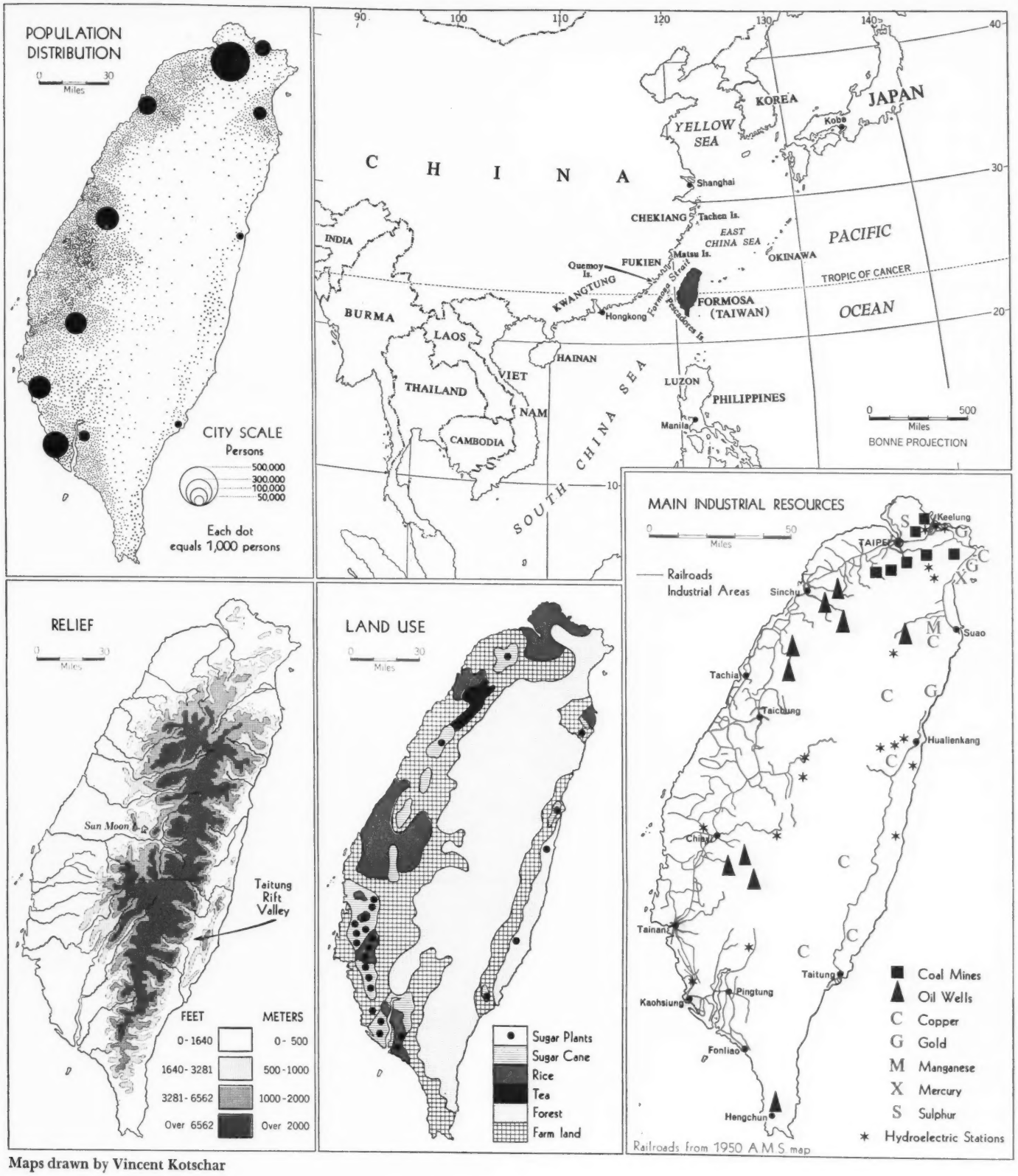
At any time between May and November the island may expect to be visited by one or two typhoons, and they are most likely to come in August and September. They bring strong winds, torrential downpours, and high tides, which cause disastrous damage to crops, property, and man. Windbreaks of trees and shrubs are planted for protection, and yields in the protected areas are about 30 per cent higher than in those left at the mercy of the elements.

Frequent earthquakes also constitute a hazard to land and man. During the 50-year period ending in 1945, for instance, the Formosans suffered 8,000 shocks, an average of 170 a year, most of which, of course, were local and small.

A further difficulty as far as agriculture is concerned is the poor quality of the soils. Many of them have been leached of plant nutrients through centuries of irrigation and heavy year-round cropping. To maintain fertility, large quantities of fertilizer are needed, most of which is provided in the form of composts, green-manure crops, night soil, and animal (mainly hog) manures; smaller quantities of chemical fertilizer are also applied.

Even though only one-quarter of the total land area is under cultivation, three-quarters of the gainfully employed Formosans are engaged in farming, and farm produce represents 80 per cent by value of the island's total production. Rice, sugar cane, and sweet potatoes are the leading crops, with rice in undisputed first place. Generally two rice crops are harvested from a plot each year, the first in June or July, the second in October or November; and it is grown chiefly in wet fields in the north, though on much land elsewhere that is suitable for both rice and sugar cane intertillage is practiced. The yield of rice per acre is much higher in Formosa than in Burma, for instance, but is lower than in Japan and is lower than in prewar days, probably because of the present shortage of fertilizers, some of which came from China. Under Japanese rule about half of Formosa's annual rice production was exported (to Japan), whereas now seven-eighths of it is consumed at home.

Sugar cane is planted from June to November and harvested about 18 to 20 months later. Here again yields per acre have fallen since prewar days, partly because of the fertilizer shortage, but also because rice prices have generally been higher than sugar prices and rice can be eaten or stored and can serve in lieu of money when currency is fluctuating in value. Formosa ranks as one of the world's largest producers of sugar. Before the war it supplied nearly 90 per cent of Japan's sugar requirements; today about four-fifths of the total produced is exported, chiefly to Japan and Southeast Asia.



Maps drawn by Vincent Kotschar

Sweet potatoes are grown almost everywhere on the island throughout all seasons, and most of them are eaten or are used for fodder and alcohol.

In recent years tea production has fallen off; nevertheless, tea is the island's fourth most valuable export, ranking after sugar, rice, and bananas. Before the war 95 per cent of the crop went to Japan, and four-fifths of it still is exported, mainly to the United States and Southeast Asia.

Before the war Formosa was the third-largest producer of canned pineapple in the world (after Hawaii and British Malaya). At that time the entire plantation crop went to Japan. As a result of the loss of markets after 1945, many farmers have shifted from pineapples to cassava.

Besides bananas, which come mainly from around Taichung and Kaohsiung, peanuts, tobacco, ramie, hemp, jute, and other subtropical products are of local importance.

One of Formosa's most valuable possessions is the forests that cover the central and eastern mountains—nearly two-thirds of the island. Trees range from tropical to mid-latitude, and even semi-arctic, types, for they extend from an altitude of 2,800 feet above sea level up to 8,700 feet. Much of the timber reserve, however, is high up in the mountains, and therefore relatively inaccessible, and much of it is in mixed stands that make mass cutting difficult. Nevertheless, in time and with proper management, the forests should be able to provide most of the island's needs for lumber, fuel wood, and pulp, and there are indications that the government is enforcing sustained-yield operations, controlling burning, and undertaking reforestation of cutover areas.

The outlook as far as minerals are concerned is less promising. Formosa has a fairly good supply of copper and small quantities of gold, mercury, manganese, and sulphur, but it lacks some of the minerals most useful to industry, such as iron and bauxite. As for industrial fuel and power, it has rather abundant reserves of low-grade coal, but little that is suitable for coking. It also produces small amounts of petroleum, but most of Formosa's needs must be met by imports, chiefly from the United States.

The island's greatest potential source of power lies in the numerous swift-flowing streams fed by abundant mountain rains. About 85 per cent of the hydroelectric power is supplied by the plants built in 1937 at Sun Moon Lake, and is distributed to all parts of the western coastal region. The eastern plants are small and are not fed by stored water; consequently, seasonal variations in flow mean periodic rationing of power.

Before 1937, Formosa's basic industry was food processing, especially sugar refining, but when hydroelectric power became available, various other industries developed. The main emphasis was on metal refining: by 1943, of the more than 90 per cent of the electric power that was used for industry, three-quarters went into the refining of metals, chiefly aluminum made with imported bauxite. Since the war the trend has been away from the metals industries (which Japan developed principally for its own benefit), and toward commodities better suited to the needs of the island itself, such as textiles and cement, now being manufactured in sufficient quantities to meet the domestic market, and chemical fertilizers, production of which has increased to the point where one-third of the amount needed is made locally.

With industry, transportation facilities have been pushed, so that the western plain, at least, is well served by a closely knit network of railroads and roads. As for overseas transportation, which is particularly important for any island, Formosa is unfortunate in having a smooth coast line with few good harbors. Only Keelung, Kaohsiung, and Hualienkang, of the seventeen on the island, are of any size.

Despite all the problems, the picture would seem to be reasonably bright were it not for the fact that

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the population is dense and is increasing rapidly. The density in 1951 was 667 persons per square mile, as compared with 586 in Japan, 150 on the China mainland, and 51 in the United States. However, this simple man-land ratio does not truly reflect the situation, for the people are unevenly distributed. The density per square mile of cultivated land, a more significant figure in an agricultural country, is 2,864 persons per square mile, as compared with 3,534 in Japan, 1,485 on the mainland, and 188 in the United States.

The most striking and dangerous feature of this situation is the rate of increase. From 1905 to 1950 the population tripled. The aborigines remained more or less stable in numbers (about 110,000 to 160,000). There was an influx of Japanese, but all 480,000 of them were repatriated in 1945. And during the years 1947–1949 some 1,500,000 Chinese refugees came over from the mainland. The bulk of the growth therefore (except for the Chinese immigration) was due to the natural increase of the native Formosans, descendants of Fukienese and Kwangtunese. Gross birth and death rates in 1951 were respectively 48 and 11 per 1,000 inhabitants. The annual natural rate of increase is 3.7 per cent, as compared with 1.5 per cent in India, for instance. At present the yearly natural increment of population is 300,000 persons.

Apparently this increase is the result of a falling death rate rather than a rising birth rate. Forty years ago the average death rate was 31 per 1,000; in 1951 it had dropped to 10, which is lower than that in many European countries, and only slightly above that in the United States.

Much of this is due to the health and medical facilities made available in Formosa, which are better than those of most other Far Eastern countries. In 1951 the infant mortality rate was 34 per 1,000, as compared to 28 in the United States and 124 in India. The average life expectancy on the island during the period 1936–1941 was 43 years; in India it was 27, on the China mainland 35, and in the United States 62.

How can Formosa hope to keep on supporting this increasing population? Practically all the cultivable land is now in use. However, it is not being cultivated as intensively as it might be were expanded irrigation facilities available, deep plowing more widely used, and more fertilizer applied. The application of fertilizer to riceland in Formosa averages 50 pounds per acre per crop; in Japan the figure is 66 to 98 pounds. Also, the number of labor days used per acre in Formosa is 41; in Japan it is 84. If yields on the acres devoted to food crops could be raised enough so that some of this land could be turned over to the production of industrial crops and more surplus

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